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SUMMARY

The American Radio Relay League, Incorporated (the League), the national association of amateur radio operators in the United States, submits its reply to those comments submitted in response to the Notice of Proposed Rule Making, FCC No. 93-61, 8 FCC Rcd. 2052 (1993), amended by Erratum, DA 93-516, DA 93-516, 8 FCC Rcd. 3233 (1993), released April 9, 1993 (the Notice).

The comments filed in this proceeding are principally opposed to the Notice proposal. The allocation status of the 902-928 MHz band is essentially unplanned. The opposition to the notice proposal reflects concerns on the part of IVHS participants about interference to AVM systems in the band. Another concern is relative to the effect of the proposed overlays of additional users on existing occupants of the band. The comments reveal the inherent difficulty in any significant quantitative expansion in the use of the band, and any qualitative change in the allocation status thereof. Though billed as a Part 90 service rule change, the net effect of the Notice proposal is a significant expansion in the use of the 902-928 MHz band, which will result in turn in the diminution of the utility of the band for non-AVM/LMS users.

The League therefore urges that the Commission adopt no rules in this proceeding unless and until it has studied the interaction between AVM and wind profiler radar systems, the suitability of AVM operations for highway safety systems in a crowded RF environment, and the alternative technologies available for the same purpose served by AVM and LMS services; not expand the frequencies available for AVM/LMS at 902-928 MHz, but rather continue to limit such operation to 903-912 MHz and 918-927 MHz; and make alternative provision for any need for LMS operation (other than traditional AVM operation) in frequency bands other than 902-928 MHz.

At the same time, the Commission should determine whether IVHS planning might be better furthered by abandonment of the 1974 AVM technology in the band and expanded use of systems such as those operated on an experimental basis by Hughes Ground Systems as Part 15 devices. An entirely separate IVHS proceeding is timely under the circumstances, dealing with varied IVHS communications needs as a whole, rather than, as in this proceeding, a piecemeal series of projects.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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JUL 29 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of Part 90 of the)
Commission's Rules to Adopt) ET Docket No. 93-61
Regulations for Automatic)
Vehicle Monitoring Systems)

To: The Commission

**REPLY COMMENTS OF
THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED**

The American Radio Relay League, Incorporated (the League), the national association of amateur radio operators in the United States, by counsel and pursuant to §1.415 of the Commission's Rules (47 C.F.R. §1.415), hereby respectfully submits its reply to those comments submitted in response to the Notice of Proposed Rule Making, FCC No. 93-61, 8 FCC Rcd. 2052 (1993), amended by Erratum, DA 93-516, 8 FCC Rcd. 3233 (1993), released April 9, 1993 (the Notice).¹ In response to certain of the comments filed in this proceeding, the League states as follows:

I. Introduction

1. The comments filed in this proceeding are principally opposed to the Notice proposal, though for numerous different reasons. What is revealed by the comments, however, is that the

¹ The reply comment date in this proceeding was extended by Order Extending Reply Comment Period, DA 93-812, released July 7, 1993, to and including July 29, 1993. Thus, these reply comments are timely filed.

allocation status of the 902-928 MHz band is essentially unplanned. The opposition to the notice proposal reflects concerns on the part of IVHS participants about interference to AVM systems in the band. Another concern is relative to the effect of the proposed overlays of additional users on existing occupants of the band. The comments reveal the inherent difficulty in any significant quantitative expansion in the use of the band, and any qualitative change in the allocation status thereof. Though billed as a Part 90 service rule change, the net effect of the Notice proposal is a significant expansion in the use of the 902-928 MHz band, which will result in turn in the diminution of the utility of the band for non-AVM/LMS users. As noted in the consolidated comments of KNOGO Corporation, VTech Communications and HTS, at 7:

In the NPRM, the Commission proposes to go well beyond the removal of the interim status of the AVM regulations that was requested by Teletrac and instead expands both the eligibility for such licenses and the permissible uses of the spectrum. Most significantly, the 902-928 MHz band would now be available for use not only for automatic vehicle monitoring but rather for "any voice signalling from and to radio units to make known the location of such units" and for the "transmission of status and instructional messages related to the units involved."...The record does not support the need for such an expansion in this particular band, and the proposal fails to reflect the significant adverse effects that such action would have on current and future use of this band by users of Part 15 devices and systems that provide no lesser public benefits.

2. The significant expansion of AVM/LMS is inadvisable, according to the comments, because of the overwhelming nature of expanded AVM operation. As noted by Interdigital Communications Corporation, at 3-4:

The increased use (and interference) which the proposed changes will encourage, is best illustrated by a quote directly from the petition for rulemaking in this proceeding. PacTel Teletrac...in their petition, said:

Each system can serve up to sixteen million RLUs (radio location units) and handle up to six million location requests per day in a specific geographic area -- or roughly 4,000 location requests per minute.

Such a large increase in traffic will increase the overall interference levels to unacceptable levels. Of major concern also, is the proposal that allows, in addition to location requests, the transmission of a broad range of "status and instructional messages" which will have the effect of creating a high volume, almost unlimited messaging service in the same band with unlicensed devices. Overall, this new expanded Location and Monitoring Service (LMS) will cause an enormous interference problem between Part 15 equipment and LMS operations and an unmanageable enforcement problem for the Commission.

The interference issue was also noted by IVHS users, such as the Florida Department of Transportation:

...(T)he Department has become acutely aware of increasing usage within the ISM frequency band, having been notified by Pacific Teletrac in January 1992 of their presence in this band. In addition, the Department has conducted its own evaluation of various ETC technologies...and has observed first hand the potential for electromagnetic interference in or near this band. It is the Department's belief that it would be in the best interest of the toll collection industry and future intelligent vehicle-highway system projects if the FCC allocated new spectrum above the ISM band for toll collection and IVHS needs.

The potential for interference with our transportation needs, present and future, are of great concern to the Department. As an example, there are those within the IVHS community who are concerned about advanced vehicle control systems where transponder failures may occur as a result of electromagnetic interference. Such failures could result in vehicle accidents and/or loss of life.

3. In short, there has been an uneasy, but workable, coexistence at 902-928 MHz between and among government uses, ISM,

Part 15, Amateur, and AVM operations to date. This works, in part, because of the relatively limited current AVM operation, (both geographically and in terms of frequency usage in most markets), the frequency agility and technical ability of amateur radio operators in interference avoidance, the lack of interference protection for Part 15 devices, and the fact that ISM devices do not have interference susceptibility as a general principle. The expansion of AVM/LMS operation will increase both the scope and scale of AVM use, and upset whatever compatibility that has accidentally developed in the band.

II. The Comments Do Not Justify Any Expansion Of AVM Operation At 902-928 MHz, At The Expense Of Other Users Of The Band

4. AMTECH Corporation ("AMTECH") recommends that the 902-928 MHz band not be divided into "wideband" and "narrowband" portions but that the Commission should permit all LMS licensees to share the spectrum on a co-equal basis. Allowing wideband or narrowband systems to operate on any frequency in the band, if carefully engineered, has some advantages for LMS operators but would work to the detriment of other services sharing the band. This would particularly adversely affect the Amateur Radio Service, which as a result would not only have less usable spectrum (since the entire band would be available for wideband or narrowband AVM/LMS operation) but amateurs would have difficulty determining segments that could be used in a given geographical location. The most difficult problem would be finding a 6 MHz segment to be used for amateur television if there is no predictable AVM/LMS frequency

usage pattern. AMTECH does not make a convincing case for the continued use of the 902-928 MHz band for vehicle identification in close proximity, as much higher frequency bands would be far more appropriate for that purpose.

5. Given the above, the suggestion of the Florida Department of Transportation that other bands be considered for IVHS projects should be taken into account. The comments of the California Department of Transportation, Office of Telecommunications are also instructive in this respect. Caltrans suggests that AVM is not as useful a service as Automatic Vehicle Identification systems, which require much shorter range communications than do AVM svstems. This

Although several commenters noted this same point, Ericsson Corporation's comments put it succinctly:

While Ericsson does not dispute that AVM or LMS services can provide valuable commercial and non-commercial benefits to the American public, Ericsson believes the Commission's proposal to allocate the entire 902-928 MHz band for LMS services is not warranted since (1) there has been no quantitative analysis showing that more spectrum should be allocated to this service than is allocated for it now...

Ericsson Comments, at 3

There are alternatives on the near horizon for the functions provided by 902-928 MHz AVM operation.² These alternatives certainly obviate any need for expansion of the AVM service in this proceeding, and as well any need to create an LMS service in the same band. The comments of the Domestic Automation Company, at 9, note the following:

There are numerous wireless alternatives in existence or under consideration which are almost certain to embrace these types of location and monitoring services. For example, Mobile Satellite services are being developed in the 1.6 GHz band which will provide regional and nationwide radiolocation services, which may be adaptable to the types of localized offerings under consideration here. The capacity of cellular and wide area SMR systems is being expanded with the use of digital technologies that will encourage a variety of non-voice applications - including, presumably, location and monitoring services, utilizing both wideband and narrowband technologies in the 900 MHz band. Indeed, just last week the Commission allocated up to three Megahertz in the 901-931, and 941 MHz bands for so-called Narrowband-PCS services, in a docket which was initially adopted to consider spectrum requirements for advanced messaging

² The comments of the Part 15 Coalition, at footnote 6. note

services. There is no reason to believe that some of the narrowband alternatives that might otherwise appear in the proposed LMS cannot and will not be far better served in the narrowband PCS spectrum in which there are currently no competing users.

7. The Senate Committee on Appropriations has just recently cautioned the Commission against any allocation plan which would diminish spectrum capacity or limit the multiplicity of users in the 902-928 MHz band. As stated in Senate Report No. 103-105, to accompany H.R. 2519, released July 22, 1993, the Committee on Appropriations, in addressing the Commission's appropriation for 1994, referred to the instant rule making proceeding specifically, stating:

The Committee notes the House Report language urging the Commission to complete within six months (optimally) its proceeding numbered PR Docket No. 93-61. While not advocating unnecessary delay, the Committee expects that such encouragement will not be perceived as an endorsement of the NPRM as issued, nor as endorsement of any plan which would diminish spectrum capacity and limit the multiplicity of users. The Committee also notes that the pending reconciliation bill contains authority for

frequency. There are other spectrum alternatives, including the possible use of a portion of the 200 MHz of government spectrum which is under consideration for reallocation for emerging technologies. The Report also appropriately criticizes the Commission's consideration of expansion of a pervasive use of an extensively shared band, to the detriment of other sharing partners. Thus, as the Report suggests, the Commission should consider alternative bands for expanded AVM operation, and should consider the general subject of IVHS allocation needs in other bands before any expansion of AVM in this proceeding.

III. Comments of Amateur Radio Operators Note Unique Needs For 902-928 MHz Occupancy

8. Among the comments from amateur radio operators, those of the Rochester VHF Group provide interesting background on the use of the 902-928 MHz band by the Amateur Radio Service. The League commends the comments of Metrovision, Inc. and Bernhard E. Keiser, as they underscore accurately the need for undiminished amateur use of this band, especially for amateur television. Comments of the Oregon Region Relay Council (ORRC), The Portland (Oregon) Amateur Radio Club (PARC) and the Technology Radio Amateur Club (TERAC) echo the point that vehicle location may be accomplished by alternative means, such as the use of GPS, which was also suggested in the comments of Telescan Systems, Inc.

9. The comments of amateur radio operator William P.N. Smith serve as an example of extremely innovative experiments carried on by individuals such as himself in the 902-928 MHz band, and note

the unique character of that band for such experimental operation, vis-a-vis other amateur bands, incorporating amateur video:

Why 915 MHz? The video link I use to get the vehicle camera signal back to the operator is FM TV at 915 MHz with a bandwidth of between 4 and 10 MHz. The 450 MHz amateur band is too crowded for experimentation with FM TV and would subject other amateur modes to interference...The 915 MHz band is a good place to experiment with varying power, deviation, and diversity reception techniques.

While the instant proceeding does not propose to amend Part 97 of the Commission's Rules, the League cannot support any change in the output power of amateur station transmitters as suggested by Mr. Smith. The subject is not one for this proceeding, but in any event, most amateur stations in this band use relatively low power. There are applications, such as Earth-Moon-Earth communications that require higher power as permitted in Part 97 of the Rules. PROBE Science also raised the issue of transmitter power for all services in the band. It proposes that the FCC consider restricting all non fixed emitters in this band be limited to 1 Watt, except for government users. This proposal is clearly aimed at the Amateur Radio Service without any technical analysis.

IV. Conclusions

10. Several commenters requested, and the Commission granted, a thirty day extension of time to prepare reply comments. This is indicative of the many unresolved issues in the instant proceeding. The "Interagency Group" of New York and New Jersey highway

authorities stated that such an extension of time is needed for fully informed participation by all interested parties.

11. The 902-928 MHz band has been informally called a "kitchen sink band" by students of spectrum allocations. If the Commission and the National Telecommunications and Information Administration were starting with a clean sheet of paper, no one would design the band the way it is today, much less as it is proposed in this and other rulemaking proceedings which continue to add sharing partners to the band. A zero-based approach to the allocation status of the band is, of course, out of the question, as the large installed user base makes it necessary to deal with the band the way it is, not as it could have been. The band is now in delicate, if not precarious, balance. It is clear from a careful reading of the comments that creation of AVM/LMS rules that significantly expand the amount of use of the band, and permit operation in the entire 902-928 MHz band (essentially an 8 MHz reallocation) would disturb that balance, not only in theory, but in actual practice.

12. The League therefore restates its counterproposal, and urges that the Commission:

A. Adopt no rules in this proceeding unless and until it has studied the interaction between AVM and wind profiler radar systems, the suitability of AVM operations for highway safety systems in a crowded RF environment, and the alternative technologies available for the same purpose served by AVM and LMS services;

B. Not expand the frequencies available for AVM/LMS at 902-928 MHz, but rather continue to limit such operation to 903-912 MHz and 918-927 MHz;

C. Make alternative provision for any need for LMS operation (other than traditional AVM operation) in frequency bands other than 902-928 MHz. At the same time, the Commission should determine whether IVHS planning might be better furthered by abandonment of the 1974 AVM technology in the band and expanded use of systems such as those operated on an experimental basis by Hughes Ground Systems as Part 15 devices. An entirely separate IVHS proceeding is timely under the circumstances, dealing with varied IVHS communications needs as a whole, rather than, as in this proceeding, a piecemeal series of projects.

Therefore, the foregoing considered, the American Radio Relay League, Incorporated respectfully requests that the Part 90 rules proposed in the Notice not be adopted at this time. In support

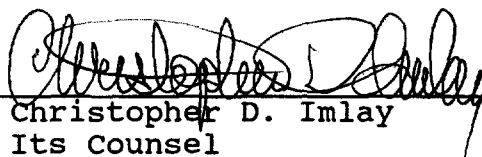
thereof, it is evident from the comments that there is no consensus for the proposed rule change, and the proposed rules are not supportable in their present form.

Respectfully submitted,

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July 29, 1993

CERTIFICATE OF SERVICE

I, Margaret A. Ford, Office Manager of the law firm of Booth, Freret & Imlay, do certify that copies of the foregoing REPLY COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED were mailed via U. S. Mail, postage prepaid, first class, this 29th day of July, 1993, to the offices of the following:

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